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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,552	01/14/2002	Daniel Charles Coy	N0030.44	4972

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WILDMAN, HARROLD, ALLEN & DIXON
225 WEST WACKER DRIVE
CHICAGO, IL 60606

EXAMINER	
MILLER, JONATHAN R	

ART UNIT	PAPER NUMBER
3653	

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/047,552	COY ET AL.
	Examiner	Art Unit
	Jonathan R. Miller	3653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-67* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-31,33-38,40-55,57-67* is/are rejected.

7)☒ Claim(s) *32,39 and 56* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *05 September 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claims 38 – 54 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations relating to the use of the settling chamber fail to further limit the apparatus structure. It is not appropriate to have a method of use dependent upon a method claim.

2. Claims 51 – 54 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations of these claims fail to futher limit a method of use. A method of use cannot include building the apparatus (i.e. a method of making limitation).

3. The amendment filed 9/5/03 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Examiner cannot find any disclosure of the "radial introduction of the gas" as claimed in claims 43 and 60.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 42 and 59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear to the Examiner how the axes of rotation of the flow patterns are primarily horizontal. If the streams are perpendicular to the inlet stream, then it would seem to dictate that the axes of rotation of the flow patterns are primarily vertical.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22-31, 33 – 38, 40, 41, 46 – 50, 55, 57, 58 and 63- 67 are rejected under 35 U.S.C. 102(b) as being anticipated by Zelazny et al. The reference discloses a settling chamber having a top section and bottom section; an outlet port positioned on the top section; and an inlet port positioned on the bottom section; wherein a ratio of height to width of the settling chamber is greater than 0.7 (Fig. 2). This figure clearly shows a structure with a ratio of height to width of the settling chamber greater than 0.7.

7. With regards to claim 23, the reference further discloses the ratio of height to width of the settling chamber is greater than 1.2 (Fig. 2). This figure clearly shows a structure with a ratio of height to width of the settling chamber greater than 1.2.

8. With regards to claim 24, the reference further discloses the bottom section comprises: a base; and an inlet port connected to the sidewall; and the ratio of the size of the base to the size of the inlet port is approximately 4 to 1 (col. 2, lines 67+).

9. With regards to claim 25, the reference further discloses the inlet port is located approximately one half the inlet port size (diameter) higher than the base (Fig. 2).

10. With regards to claim 26, the reference further discloses the base is circular (col. 2, lines 67+). (diameter inherently implies circular base).

11. With regards to claim 27, the reference further discloses the sidewall is cylindrical (Fig. 2).

12. With regards to claim 28, the reference further discloses the inlet port is generally circular and a central axis of the inlet port is perpendicular to a central axis of the sidewall (Fig. 2).

13. With regards to claim 29, the reference further discloses the inlet port is generally circular and a ratio of a diameter of the sidewall to a diameter of the inlet port is 4 to 1 (col. 2, lines 67+).

14. With regards to claim 30, the reference further discloses the inlet port is generally circular and a ratio of the height of the settling chamber to a diameter of the inlet port is greater than 2.8 (col. 2, lines 67+ and Fig. 2). Again, ratios can be determined from the figure.

15. With regards to claim 31, the reference further discloses the ratio of the height of the settling chamber to the diameter of the inlet port is greater than 4.8 (col. 2, lines 67+ and Fig. 2). Again, ratios can be determined from the figure.

16. With regards to claim 33, the reference further discloses the top section has a frustoconical shape (Fig. 2).

17. With regards to claim 34, the reference further discloses the top section has a cone angle of 90 degrees (Fig. 2).

18. With regards to claim 35, the reference further discloses the outlet port is located at a top portion of the frustoconical shape (Fig. 2).

19. With regards to claim 36, the reference further discloses the apparatus is constructed of stainless steel (col. 3. lines 2+)

20. With regards to claim 37, the reference further inherently discloses the inlet port is welded to the settling chamber.

21. With regards to claim 38, the reference further discloses introducing a gas fluidized particle stream through the inlet port at a given volume flow rate; establishing a gas stream flow pattern within the settling chamber that retards transportation of one group of particles to the outlet port and facilitates transportation of another group of particles to the outlet port; and collecting the other size of particles at the outlet port (col. 2, lines 64+).

22. With regards to claim 40, the reference further discloses establishing a main recirculating flow pattern in the bottom section; and establishing a secondary recirculating flow pattern in the top section (col. 2, lines 40+). These are inherent based upon the shape of the vessel and the particles separated therein.

23. With regards to claim 41, the reference further inherently discloses creating an interface between the main recirculating flow pattern and the secondary recirculating flow pattern. The interface must exist between the two adjacent flow patterns.

24. With regards to claim 46, the reference further discloses introducing a gas fluidized particle stream comprising one of metal oxide nanoparticles, metal nanopowders, metal nitride, mixed metal oxides, metal carbides and metal sulfide nanoparticles. The reference discloses separation of toner particles. Theses are a metal nanopowder.

25. With regards to claim 47, the reference further discloses introducing a gas fluidized particle stream comprising particles having a minimum particle size of approximately .001 micron. Toner particle size varies on the order of microns and 10s of microns. Examiner contends that the reference thus inherently discloses a minimum particle size of approximately .001 micron.

26. With regards to claim 48, the reference further inherently discloses introducing a gas fluidized particle stream comprising free particles. Toner particles are free particles.

27. With regards to claim 49, the reference further inherently discloses introducing a gas fluidized particle stream comprising particle clusters. Toner particles are free particles that tend to cluster.

28. With regards to claim 50, the reference further inherently discloses introducing a gas fluidized particle stream comprising free particles and particle clusters. Toner particles are free particles that tend to cluster.

29. With regards to claim 55, the reference further discloses means for introducing a gas fluidized particle stream into a settling chamber; means for establishing a gas stream flow pattern within the settling chamber that retards transportation of one group of particles to an outlet port and facilitates transportation of another group of particles to the outlet port (col. 2, lines 64+).

30. With regards to claim 57, the reference further discloses means for establishing a main recirculating flow pattern; and means for establishing a secondary recirculating flow pattern (col. 2, lines 40+). These are inherent based upon the shape of the vessel and the particles separated therein.

31. With regards to claim 63, the reference further discloses means for introducing a gas fluidized particle stream comprising one of metal oxide nanoparticles, metal nanopowders, metal nitride, mixed metal oxides, metal carbides and metal sulfide nanoparticles. The reference discloses separation of toner particles. Theses are a metal nanopowder.

32. With regards to claim 64, the reference further discloses means for introducing a gas fluidized particle stream comprising particles having a minimum particle size of approximately .001 micron. Toner particle size varies on the order of microns and 10s of microns. Examiner contends that the reference thus inherently discloses a minimum particle size of approximately .001 micron.

33. With regards to claim 65, the reference further inherently discloses the means for introducing comprises: means for introducing a gas fluidized particle stream comprising free particles. Toner particles are free particles that tend to cluster.

34. With regards to claim 66, the reference further inherently discloses the means for introducing comprises: means for introducing a gas fluidized particle stream comprising particle clusters. Toner particles are free particles that tend to cluster.

35. With regards to claim 67, the reference further inherently discloses the means for introducing comprises introducing a gas fluidized particle stream comprising free particles and particle clusters. Toner particles are free particles that tend to cluster.

Claim Rejections - 35 USC § 103

36. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

37. Claims 44, 45, 61 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zelazny et al. While the reference fails to explicitly disclose introducing the gas fluidized particle stream at a given volume flow rate of 10-1000 scfm, and more particularly introducing the gas fluidized particle stream at a given volume flow rate of 100-200 scfm, the reference does disclose the importance of flow rates to create the critical suspension velocity. This is based on the particle density, tank size and inlet pressure (col. 4, lines 14+). This illustrates that at the time of the invention, it would have been obvious to one of ordinary skill in the art to optimize the flow rates based on the variables as set forth in the reference. It has been held that discovering the optimum or workable ranges involves only routine skill in the art. It has also been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Conclusion

38. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan R. Miller whose telephone number is (703) 305-5778. The examiner can normally be reached on M-F: 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald P. Walsh can be reached on (703) 306-4173. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

jrm

DONALD P. WALSH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600